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Fast-track assessment clinic: selection of patients for a one-stop hip assessment clinic

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ABSTRACT

INTRODUCTION The fast-track assessment clinic (FTAC) is a process to select patients who are very likely to require primary total hip replacement. Selected patients can then be seen in a one-off clinic reducing the number of hospital visits, cost to primary care trusts and delay between referral and treatment.

PATIENTS AND METHODS Fifty patients on the waiting list for hip replacement were analysed to see if there were common parameters that led to their inclusion. From these data, fast-track selection criteria (FTSCs) were generated. These FTSCs were used to make a dual comparison of outcomes between 52 patients seen in a traditional clinic. Finally, a pilot study was conducted in which patients fulfilling FTSCs were seen in a designated clinic.

RESULTS An Oxford hip score (OHS) of 34 and above combined with severe loss of joint space, severe marginal osteophytes, or both was common to most patients on the waiting list (84%). FTSCs correctly predicted the outcome of the orthopaedic clinic in 38 patients out of a total of 52. During the pilot stage, positive FTSCs were shown to have a positive predictive value of 92% for joint replacement being carried out and a negative predictive value of 46%.

CONCLUSIONS An OHS of 34 or above combined with complete loss of joint space and/or severe marginal osteophyte formation can be used to select patients who are very likely to need total hip replacement. These patients can be seen in a clinic that combines assessment of surgical indication with medical fitness for surgery.

KEYWORDS

Oxford score – Hip – Arthroplasty – One-stop – clinic – Fast-track

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The UK Government has pledged that by 2008 there will be a maximum wait of only 18 weeks from any referral by a general practitioner (GP) to treatment in hospital if required.[1] At present, first out-patient consultations are provided within 13 weeks of GP referral and, when surgery is required, the operation will be undertaken within 6 months of the out-patient consultation.[2] If the Government's 18-week target is to be achieved, patient assessment must be streamlined.

The aim of the fast-track assessment clinic (FTAC) is to identify which GP referrals are most likely to require hip replacement and streamline assessment of these patients. If the screening process has high specificity, there should be a low rate of patients attending the FTAC who do not proceed to surgery. Patients who are selected by the fast-track selection criteria (FTSCs) can be seen in a one-stop clinic, providing both specialist orthopaedic assessment and medical assessment of fitness for surgery. If successful, the number of hospital visits will be reduced for the patient, costs will be reduced for the Primary Care Trust (PCT) and the time from referral to treatment minimised for the patient.

Our aims were:

1. *To identify common triggers that lead to patients being included on the waiting list for primary total hip replacement (FTSCs).*
2. *To determine if the triggers identified in patients on the waiting list can be used to predict the outcome of an out-patient appointment for new patients.*
3. *To determine if it is feasible to streamline patients into a one-stop fast-track clinic.*

Patients and Methods

The study was carried out on patients who were referred to a hip specialist orthopaedic surgeon by GPs in the

Table 1 **Patient demographics**

	Phase 1	Phase 2	Phase 3
Number of patients	50	52	54
Mean age (years)	69.44 (SD 11.01)	64.62 (SD 13.51)	68.35 (SD 10.62)
Male:Female	17:33	20:32	16:38
Referral dates	Aug 2002–Apr 2003	Jun 2003–Aug 2004	June 2005–Nov 2005

catchment area of St Helier Hospital, a district general hospital in Surrey, England between August 2002 and December 2005. A three-phase programme was devised to ascertain entry criteria into the fast-track clinic programme and to monitor the effectiveness of the scheme.

Phase 1

Phase 1 was devised to identify triggers that led to patients being included on the waiting list for primary total hip replacement. The first 50 patients already on the waiting list for primary total hip replacement were selected (Table 1). Each patient was sent a questionnaire, which requested information on past medical history, current medications and included an Oxford Hip Score (OHS) questionnaire.[4] Hip radiographs used in the initial assessment of these patients were analysed according to a modified Kellgren–Lawrence criteria (Table 2).[3] This provided the data for FTSCs. The data were analysed to demonstrate an OHS range and radiographic changes that were common to most patients who had been put on the waiting list for primary total hip replacement via the traditional out-patient route.

Phase 2

Phase 2 was a comparison of the fast-track outcome with that of a traditional out-patient clinic. Fifty-two patients who had been referred to the orthopaedic clinic with a hip pain problem were analysed according to FTSCs established in Phase 1 of the study. Those who met the criteria were categorised as likely to require a hip replacement, those who did not meet the criteria were categorised as unlikely to require surgery. All patients were subsequently seen in a traditional orthopaedic clinic where the assessor was blind to the outcome of the fast-track assessment.

Phase 3

Phase 3 involved a pilot study of the fast-track scheme. Fifty GP referred patients with a hip pain problem were entered into the fast-track process. Patients were sent a hip questionnaire and instructions to attend hospital for an anteroposterior radiograph of both hips and a lateral of the affected side if they had not already done so within 3 months of receipt of the referral letter (Fig. 1). When the radiograph had been processed and the questionnaire returned, the fast-track team (consisting of a consultant hip specialist, specialist registrar and senior house officer) performed analysis of the radiograph to ascertain if the patient met the FTSCs (Table 3). Those who did not fulfil the FTSCs were given a routine orthopaedic out-patient appointment within the 13-week referral-to-clinic target. Patients who fulfilled FTSCs were sent an appointment for the FTAC.

The FTAC is a dedicated clinic run by a senior specialist registrar and/or consultant. In clinic, the orthopaedic surgeons are able to assess each patient's need for surgery, identify factors that will influence their surgical strategy and address the patient's questions and concerns. For cases where hip replacement is agreed, the patient progresses directly to a nurse-led pre-assessment for surgery.

Table 1 **Modified Kellgren–Lawrence criteria for analysis of hip radiographs[3]**

Radiological change	Category			
Surface irregularity (accetabular and/or femoral)	None/Doubtful	Mild	Moderate	Severe
Marginal osteophytes (accetabular and/or femoral)	None/Doubtful	Mild	Moderate	Severe
Sub-chondral sclerosis (accetabular and/or femoral)	None/Doubtful	Mild	Moderate	Severe
Bone cysts (accetabular and/or femoral)	None/Doubtful	Mild	Moderate	Severe
Loss of joint space (superior and/or medial)	None/Doubtful	Partial	Complete	

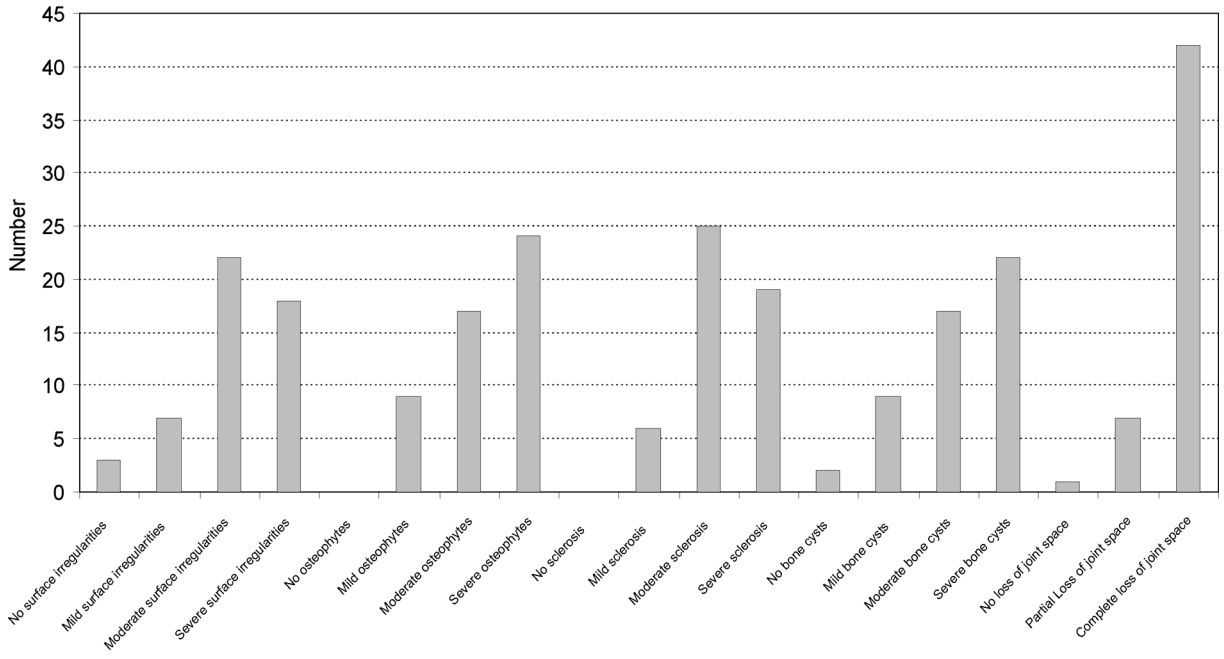

Figure 1 Distribution of radiological changes in patients on the waiting list for primary total hip replacement.

Results

Phase 1

Analysis of 50 patients showed an average OHS of 44 (SD ± 8). Forty-six patients had an OHS of 34 and above (Fig. 2). Of these 50 patients, 42 had a complete loss of joint space on radiographs and 24 patients had severe marginal osteophytes. When combined, 42 out of 50 patients on the waiting list for total hip replacement had an OHS of 34 or above and complete loss of joint space or severe marginal osteophyte formation.

Phase 2

Fifty-two patients completed a questionnaire prior to their out-patient appointment. All patients who completed a

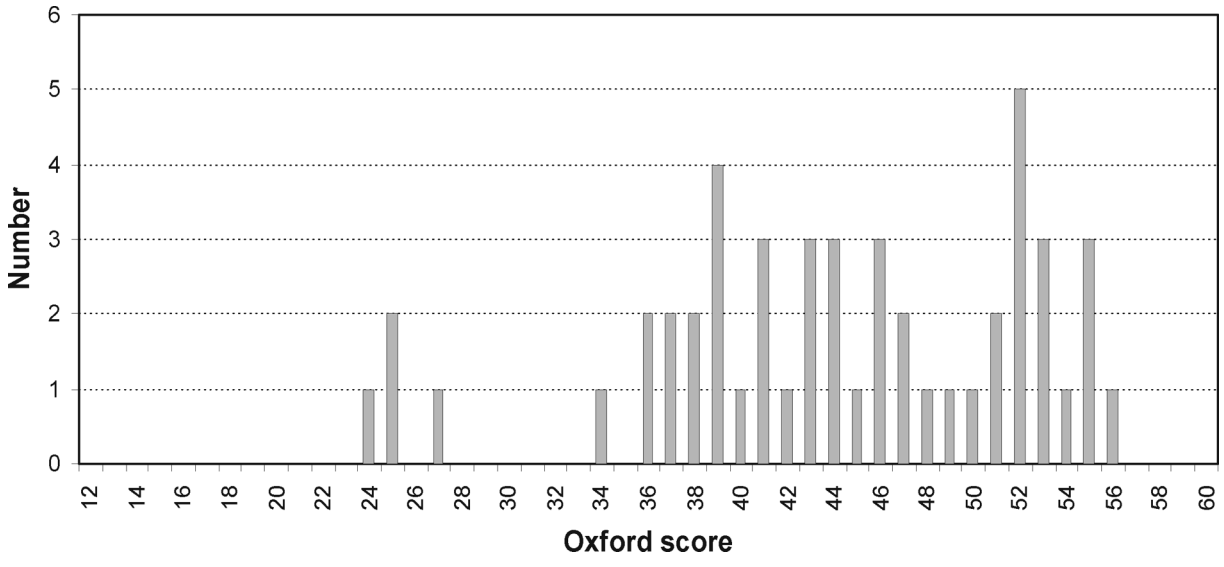

Figure 2 Distribution of Oxford hip scores of patients on the waiting list for primary total hip replacement.

Table 3 Fast-track selection criteria

Oxford score	≥ 34
Radiological change	Complete loss of joint space and or severe marginal osteophyte formation

questionnaire were subsequently seen in the orthopaedic clinic. Thirty-two patients satisfied FTSCs, 20 did not (Table 4).

Phase 3

Sixty questionnaires were sent to patients, four questionnaires were never returned despite a prompting letter and follow-up phone calls. Two patients who filled their Oxford hip questionnaire either incorrectly or partially were contacted and corrections made. Four patients were removed from the process as they opted for private treatment. Of those who returned their questionnaires, 25 satisfied FTSCs and 28 did not. The results are shown in Table 5.

Discussion

The OHS has been validated to assess outcome after joint replacement, pre- and postoperative OHS have been used to demonstrate improvement or otherwise.[4–7] This study extends the scope of the OHS to the pre-operative assessment of patients. Our use of an OHS of 34 or above is in agreement with a previous study comparing outcomes of joint replacement in which a postoperative OHS of => 33 was shown to correlate to a poor outcome in hip replacement.[6] A questionnaire of 304 hip surgeons suggested rest pain, pain with activity and functional limitation are more important indications for joint replacement than radiological changes.[8] The OHS provides a tool to assess these key areas; however, it is important to qualify patients' answers to questionnaires with radiological changes as pain felt in the hip joint can have multiple aetiology. Radiological criteria of complete loss of joint space and/or severe marginal osteophyte formation provide tangible evidence of significant hip joint pathology.[3] Other changes that were common in patients on the waiting list for total hip replacement (such as moderate bone sclerosis and severe bone cyst) were not thought to be representative of severe joint disease or to be easily reproducible between assessors.

The radiographs ordered by the GP were carried out in our Trust, providing us with easy access to films for review. Since the study, the Trust has gone onto Picture Archiving and Communication System (PACS) simplifying matters further. We do acknowledge that this may not be as simple in other regions of the UK.

When comparing outcomes of FTSCs with the standard orthopaedic out-patient clinic there is some discordance. This is not surprising as there is no agreed standard of indication for total hip replacement[8] and it is likely that disagreement would exist between experts. What can be said

Table 4 Comparative table of fast-track outcome with the orthopaedic out-patient clinic

	Booked for THR at OPA	Not booked for THR at OPA
Patients who fulfil FTSCs	28	4
Patients who do not fulfil FTSCs	10	10

THR, total hip replacement; OPA, out-patient appointment. Sensitivity, 0.737; specificity, 0.714; positive predictive value, 0.875; negative predictive value, 0.50.

Table 5 Outcomes of the fast-track clinic

	THR carried out	THR not carried out
Patients who fulfil FTSCs seen in fast-track clinic	23	2
Patients not fulfilling FTSCs seen in traditional OPA	15	13

THR, total hip replacement; OPA, out-patient appointment. Sensitivity, 0.605; specificity, 0.867; positive predictive value, 0.920; negative predictive value, 0.464.

of these results is that there is strong evidence for the continuing need for a face-to-face meeting between the patient and surgeon before the day of operation and that there is little prospect for true direct access clinic for total hip replacement.

This pilot study of the FTAC has shown that patients who fulfil the FTSCs are very likely to go on to have a hip replacement. This would suggest that it is possible to have a streamlined clinic combining medical assessment with a low rate of patients being seen in the FTAC who do not require hip replacement and, therefore, do not require medical assessment. This clinic will hopefully reduce costs, improve patient satisfaction and reduce referral to treatment delay. It is also demonstrated that a significant number of those patients who do not fulfil the FTSCs do go on to joint replacement after review in the orthopaedic clinic, confirming the continuing need for orthopaedic out-patient assessment for these patients.

It is the aim of the team to develop the fast-track principle to bring services into line with the NHS 'choose and book' scheme.[9] A website has been conceived that will allow a GP to refer directly to an orthopaedic specialist centre during a consultation. The referral will include an interactive OHS which, in combination with analysis of digital radiographs, will enable the patient to be allocated to an appropriate clinic. Those who are designated to the fast-track clinic can be added to the waiting list at that time with a high probability that the patient will proceed to operation.

Conclusions

The results suggest that the FTSCs can be used for identification of patients who are very likely to need a hip replacement. These patients can then be seen in the FTAC which combines surgical and pre-operative assessment in the knowledge that they have a high probability of proceeding to operation after they are assessed in the FTAC. However, the criteria do not capture all patients as the indication for joint replacement is not always discrete or constant. FTAC cannot, therefore, replace the traditional out-patient appointment but can be used as a supplement to current services.

References

1. Appleby J, Harrison T. *The War on Waiting for Hospital Treatment, What has Labour achieved and what challenges remain?* 2005; ISBN 1 85717 496 8 <www.kingsfund.org.uk>.
2. National Audit Office <www.nao.org.uk>.
3. Kellgren JH, Lawrence JS. Radiological assessment of osteo-arthrosis. *Ann Rheum Dis* 1957; **16**: 494–502.
4. Dawson J, Fitzpatrick R, Carr A, Murray D. Questionnaire on the perceptions of patients about total hip replacement. *J Bone Joint Surg Br* 1996; **78**: 185–90.
5. Dawson J, Fitzpatrick R, Frost S, Gundle R, McLardy-Smith P, Murray D. Evidence for the validity of a patient-based instrument for assessment of outcome after revision hip replacement. *J Bone Joint Surg Br* 2001; **83**: 1125–9.
6. Field RE, Cronin MD, Singh PJ. The Oxford hip scores for primary and revision hip replacement. *J Bone Joint Surg Br* 2005; **87**: 618–22.
7. Kalairajah Y, Azurza K, Hulme C, Molloy S, Drabu KJ. Health outcome measures in the evaluation of total hip arthroplasties – a comparison between the Harris hip score and the Oxford hip score. *J Arthroplasty* 2005; **20**: 1037–41.
8. Dreinhöfer K, Dieppe P, Stürmer T, Grober-Gratz D, Flören M, Günther KP *et al*. Indications for total hip replacement: comparison of assessments of orthopaedic surgeons and referring physicians. *Ann Rheum Dis* 2006; **65**: 1346–50.
9. NHS. <www.chooseandbook.nhs.uk>.